Water Supply Outlook For Nevada

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE

Cooperating with

NEVADA DEPARTMENT of CONSERVATION
AND NATURAL RESOURCES
DIVISION OF WATER RESOURCES

AS OF
JAN. 1, 1979

TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

COVER PHOTO: VIEW OF A SNOTEL DATA SITE IN THE SNOWY RANGE IN WYOMING. TALL CYLINDRICAL DEVICE IS A PRECIPITATION GAGE. SNOW PILLOWS ON THE GROUND NOT VISIBLE DUE TO SNOW COVER. SHELTER HOUSE, ANTENNA TOWER, ANTENNA, AND TEMPERATURE UNIT ARE VISIBLE BEHIND THE PRECIPITATION GAGE.

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, West Technical Service Center, Room 510, 511 N.W. Broadway, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	Room 129, 2221 East Northern Lights Blvd., Anchorage, Alaska 99504
Arizona	Room 3008, Federal Building, 230 N. First Ave., Phoenix, Arizona 85025
Colorado (N. Mex.)	P. O. Box 17107, Denver, Colorado 80217
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 98, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno, Nevada 89505
Oregon	1220 S. W. Third Ave., Portland, Oregon 97204
Utah	4420 Federal Bldg., 125 South State St., Salt Lake City, Utah 84138
Washington	360 U. S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82602

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Snow Surveys Branch, California Department of Water Resources, P.O. Box 388, Sacramento, California 95802 --- for British Columbia by the Ministry of the Environment, Water Investigations Branch, Parliament Buildings, Victoria, British Columbia V8V 1X5 --- for Yukon Territory by the Department of Indian and Northern Affairs, Northern Operations Branch, 200 Range Road, Whitehorse, Yukon Territory Y1A 3V1 --- and for Alberta, Saskatchewan, and N.W.T. by the Water Survey of Canada, Inland Waters Branch, 110-12 Avenue S.W, Calgary, Alberta T3C 1A6.

WATER SUPPLY OUTLOOK FOR NEVADA

and

FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

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WATER SUPPLY OUTLOOK FOR NEVADA

SNOW COURSE MEASUREMENTS TAKEN AT THE END OF DECEMBER INDICATE A BELOW AVERAGE SNOWPACK ON THE EAST SLOPE OF THE SIERRA'S. THE SNOWPACK IS PRESENTLY ONLY 73 PERCENT OF AVERAGE. THE HUMBOLDT AND SNAKE RIVER BASINS HAVE AVERAGE TO NEAR AVERAGE SNOWPACKS.

RESERVOIR STORAGE IS BELOW AVERAGE EXCEPT FOR LAHONTAN ON THE CARSON RIVER, TOPAZ AND BRIDGEPORT RESERVOIRS ON THE WALKER RIVER AND MEAD AND MOHAVE RESERVOIRS ON THE COLORADO RIVER. LAKE TAHOE CONTAINS ONLY 57,000 ACRE-FEET USABLE STORAGE AS COMPARED TO AN AVERAGE 445,000 ACRE-FEET. THIS IS ONLY 13 PERCENT OF AVERAGE. THE ELEVATION OF THE SURFACE WATER IS 6223.47. THE RIM HEIGHT IS 6223.00 FEET. RYE PATCH AND WILD-HORSE RESERVOIRS ARE BELOW AVERAGE.

Snow course measurements taken near the end of December indicate a 73 percent average snowpack in the Sierra's. Only three low elevation courses were near average. The high elevation courses have a lower percentage snowpack than the lower elevations. Only two major storms occurred for snowpack accumulation. The first was November 19 - 22, 1978 and the second was December 15-19, 1978. Normally, between 40 to 45 percent of the snowpack has occurred by January 1. This year only about 30 percent has occurred. The December 15-19, 1978 storm deposited snow at all elevations and cold temperatures have prevented snowmelt at the lower elevations.

A limited number of measurements in the Snake and Humboldt Basins indicate near average snowpacks. Snow course measurements are not taken on January 1 in other parts of the State.

Reservoir storage varies from near average to much below average, such as Lake Tahoe. Seven major reservoirs serving irrigated agriculture in the State have storage of only 50 percent of average. Lake Tahoe's water level is 6223.47 for a total usable storage of 57,000 acre-feet or 13 percent of average. Lahontan reservoir contains 202,000 acre-feet for 108 percent of average. Topaz and Bridgeport reservoirs have a combined total of 70,000 feet or 120 percent of average.

USDA SCS-PORTLAND, OREG 1979 M7-L-22025C

Rye Patch reservoir contains 45,000 acre-feet, considerably below average but slightly above last year's 41,000 acre-feet. Wildhorse contains 27,000 acre-feet.

Mead and Mohave reservoirs on the Colorado River have storage of 126 and 106 percent of average, respectively.

It is still very early in the season and a couple of major storms will probably bring snowpacks near average. However, it is apparent that with storage deficient in many reservoirs and a below average to average snowpack, much more snowfall is needed to assure adequate water supplies this season.

NOTE:

Snow measurements taken by the Desert Research Institute are included in this report. These measurements are single sample points with the snow water collected , melted and volume determination made in the laboratory. Measurements from these sites will appear in future bulletins.

SNOW COURSE MEASUREMENTS

DRAINAGE BASIN and or SNOW COURSE		THIS YEAR			PAST RECORD	
					Water Content (inches)	
NAME	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average †
LAKE TAHOE-TRUCKEE RIVER						
Donner Summit	6900	1/3/79	27	8.0	25.0	15.3
Echo Peak	7800	12/29/78	34	8.6	22.5	-
Echo Summit	7450	12/28/78	35	8.5	11.8	13.0
Fallen Leaf	6240	12/19/78	23	2.6	2.5	-
Freel Bench	7300	12/29/78	19	4.7	5.4	5.4
Glenbrook #2	6900	12/30/78	17	4.6	5.6	4.1*
Hagans Meadow	8000	12/29/78	23	5.8	10.3	7.4
Heavenly Valley	8800	12/29/78	33	8.4	15.8	11.8*
Independence Camp	7000	12/26/78	18	4.4	7.1	8.1*
Independence Creek	6500	12/26/78	10	2.2	4.1	-
Independence Lake	8450	12/26/78	26	6.1	18.3	-
Marlette Lake	8000	12/26/78	30	7.8	13.0	8.7*
Mount Rose	9000	12/26/78	27	7.0	16.4	-
Mount Rose Ski Area	8850	12/26/78	33	8.0	21.2	17.2*
Richardsons #2	6500	12/29/78	23	5.8	7.6	6.1*
Sage Hen Creek	6500	12/26/78	12	2.7	-	-
Squaw Valley #2	7500	12/29/78	37	9.8	24.0	-
Tahoe City Cross	6750	12/29/78	18	4.9	7.7	6.0*
Truckee #2	6400	12/29/78	14	3.5	-	-
Upper Truckee	6400	12/29/78	23	5.1	3.7	4.4
Ward Creek #2	7000	12/29/78	34	8.9	21.0	13.0*
Ward Creek #3	6750	12/29/78	36	9.3	14.1	12.1*
CARSON-WALKER RIVERS						
Blue Lakes	8000	1/2/79	34	8.7	-	-
Ebbetts Pass AM	8700	12/27/78	29	7.3a	-	-
Ebbetts Pass #2	8700	12/27/78	36	9.0	20.0	-
Leavitt Lake	9400	12/27/78	40	10.5	-	-
Leavitt Meadows	7200	12/27/78	20	4.6	-	-
Lobdell Lake AM	9200	12/27/78	20	4.0	8.8a	-
Poison Flat #2	7900	12/27/78	28	6.2	10.6	-
Poison Flat AM	7900	12/27/78	26	5.7a	-	-
Sonora Pass	8800	12/27/78	29	5.9	13.2	9.6
Upper Fish Valley	8050	12/27/78	28	6.0a	-	-
Virginia Lakes	9500	12/27/78	20	5.0	12.4	6.8
Virginia Lakes Ridge	9200	12/27/78	25	5.6	12.2	6.6*
Wet Meadows Lake #2	8050	12/27/78	45	11.7	16.2	-
SNAKE RIVER						
Bear Creek AM	7800	NS			10.2	8.1*
Goat Creek AM	8800	12/28/78	22	5.6	6.7	7.9*
Big Bend	6700	NS		3.3**	-	-
Hummingbird Springs AM	8945	NS			9.5	10.2*
Merritt Mountain AM	7000	1/3/79	16	3.7a	4.1a	-
Pole Creek Ranger Station	8330	12/28/78	30	8.1	6.4	9.1
76 Creek AM	7100	1/3/79	12	2.6a	4.6a	5.3*
Stag Mountain-AM	7700	1/3/79	7	1.6a	2.2a	-

+ 1963-1977 period.

SNOW COURSE MEASUREMENTS

DRAINAGE BASIN and/or SNOW COURSE NAME	Elevation	THIS YEAR: Date of Survey	THIS YEAR: Snow Depth (inches)	THIS YEAR: Water Content (inches)	PAST RECORD: Water Content: Last Year	PAST RECORD: Water Content: Average +
OWYHEE RIVER						
Columbia Basin AM	6650	1/3/79	12	2.8a	2.2a	-
Fawn Creek AM	7000	1/3/79	16	3.7a	2.9a	-
Jack Creek, Upper AM	7250	1/3/79	9	2.0a	2.2a	-
Taylor Canyon	6200	12/27/78	10	2.7	1.7	2.1
UPPER AND LOWER HUMBOLDT RIVER						
American Beauty AM	7800	1/3/79	18	4.1a	4.1a	-
Corral Canyon	8500	1/3/79	29	6.7a	3.2a	-
Dorsey Basin	8100	12/31/78	-	6.0**		
Fry Canyon	6700	12/28/78	12	3.0	1.3	3.2
Midas AM	7200	1/2/79	12	2.8a	2.1a	-
Robinson Lake AM	9200	1/3/79	48	11.0a	8.3a	-
Rodeo Flat	6800	12/28/78	10	2.7	1.5	2.8
Tent Mountain AM	7000	1/3/79	13	3.0a	0.7a	-
Tent Mountain AM	8350	1/3/79	17	3.9a	2.3a	-
Toe Jam AM	7700	1/3/79	11	2.5a	2.3a	-
Tremewan Ranch	5700	12/28/79	3	0.6	0.8	1.0
Trout Creek, Upper AM	8500	1/3/79	14	3.2a	6.3a	-
OTHER MEASUREMENTS						
TAHOE-TRUCKEE BASIN						
Alder Creek	6960	12/28/79	23	6.4	-	-
Apollo Way	7300	12/29/78	7	1.9	6.4	-
Bennett Flat	6200	12/28/78	10	2.1	-	-
Davis Creek	5160	1/1/79	7	1.8	-	-
Evergreen Hills Road	5700	12/29/78	7	1.7	-	-
Galena Creek	7440	12/29/78	24	6.4	-	-
Hobart Mills	5850	12/28/78	8	1.8	-	-
Incline Lake	8000	12/29/78	16	4.4	12.4	-
Jones Creek	6000	12/29/78	8	2.1	-	-
Mt. Rose Resort	8280	12/29/78	27	7.8	15.4	-
North Star Fire Department	6320	12/28/78	14	3.7	-	-
RNR Test Site	6400	12/29/78	15	4.2	4.8	-
Sky Tavern	7620	12/29/78	17	4.8	10.1	-
Spooner Summit	7620	12/29/78	22	6.5	8.5	-
Squaw Valley Fire Department	6240	12/28/78	12	3.0	-	-
Sundance Lodge	7060	12/29/78	16	4.3	-	-
Tahoe Meadows	8540	12/29/78	29	8.1	21.0	-
Tamarack Lake	8820	12/29/78	28	8.5	-	-
Third and Incline Creeks	6235	12/29/78	7	1.8	0	-
Thunder Cliff	6200	12/28/78	12	3.8	-	-
Truckee Airport	5900	12/28/78	10	2.6	-	-
Whites Creek	5670	12/29/78	6	1.6	-	-

NOTE:
*All averages based on 1963-77, 15 year period. Forecast period is April 1 through July 31 unless otherwise noted. a—Aerial marker, water content estimated. * 1963-77 adjusted average.*

NS No Survey

+ 1963-1977 period.

M7-L-22025P

RESERVOIR STORAGE (Thousand Acre Feet) AS OF January 1, 1979

Basin or Stream	RESERVOIR	Usable Capacity	Usable Storage		
			This Year	Last Year	Average+
Owyhee	Wild Horse	72	27	21	29
Lower Humboldt	Rye Patch	172	45	41	106
Colorado	Mohave	1,810	1,680	1,643	1,589
Colorado	Mead	26,159	21,976	20,250	17,421
Tahoe	Tahoe	732	57	0	445
Truckee	Boca	41	21	11	19
Truckee	Stampede**	220	61	32	112*
Truckee	Prosser***	30	9	2	8
Carson	Lahontan	291	202	45	187
West Walker	Topaz	59	34		31
East Walker	Bridgeport	42	36		27

* *Adjusted average.*
** *Storage began August 1, 1969.*
*** *Flood Control use allocation of 20,000 acre-feet between November 1 and April 10.*

TOTAL RESERVOIR STORAGE (Thousand Acre Feet)

MONTH	This Year	Last Year	Average +
October 1	472	97	786
January 1	422	124	844
February 1		221	920
March 1		302	968
April 1		448	1135
May 1		533	1033

The above data developed from Wild Horse, Rye Patch, Tahoe, Boca, Lahontan, Topaz, and Bridgeport Reservoirs in 1,000 Acre-feet.
TOTAL USABLE CAPACITY 1,409

PEAK FLOWS (MAXIMUM MEAN DAILY) (Av. flow for 24 hrs. on day of greatest flow)

FORECAST POINT	PEAK FLOW (SECOND FEET)	
	Forecast Range	Average +

No forecast issued January 1

FORECAST DATE of LOW FLOW VALUES

FORECAST POINT	Low Flow Value Second/Ft.	Forecast Date Stream Will Recede to Low Flow Value	Average Date of Low Flow Value

No forecast issued January 1

+ 1963-1977 period.

PRECIPITATION (Inches)

DRAINAGE BASIN and PRECIPITATION GAGE LOCATION	ELEVATION	CURRENT INFORMATION			FROM APPROX. OCT 1 TO DATE		
		Date of Reading	Month's Precipitation	Last Year	This Year	Last Year	1977
LAKE TAHOE - TRUCKEE							
Echo Peak	7800	12/29/78	-	-	7.9	19.9	4.6
Fallen Leaf	6240	12/19/78	-	-	5.7	13.5	1.7
Hagans Meadow	8000	12/29/78	-	-	7.0	13.2	-
Heavenly Valley	8800	12/29/78	-	-	8.1	13.7	-
Independence Camp	7000	12/26/78	-	-	5.0	11.8	2.3
Independence Creek	6500	12/26/78	-	-	3.4	12.1	3.4
Independence Lake	8450	12/26/78	-	-	5.0	12.1	7.2
Marlette Lake	8000	12/26/78	-	-	8.6	15.1	-
Mount Rose	9000	12/26/78	-	-	7.0	10.5	1.2
Tahoe City Cross	6750	12/29/78	-	-	6.1	10.0	-
Truckee #2	6400	12/29/78	-	-	3.7	-	-
Ward Creek #3	6750	12/29/78	-	-	10.9	22.4	7.1
Mount Rose Ski Area	8850	12/26/78	-	-	9.3	-	-
CARSON RIVER							
Ebbetts Pass	8750	12/27/78	-	-	11.3	15.7	7.2
Poison Flat	7900	12/27/78	-	-	9.1	11.1	-
Wet Meadows	8050	NR	-	-	-	11.1	5.0
WALKER RIVER							
Leavitt Meadow	7200	12/27/78	-	-	5.6	-	-
Lobdell Lake	9200	12/27/78	-	-	4.6	-	-
Sonora Pass Bridge	8800	12/27/78	-	-	6.9	13.1	5.2
Virginia Lakes Ridge	9200	12/27/78	-	-	6.7	12.7	4.3
HUMBOLDT RIVER							
Rodeo Flat	6800	12/28/78	-	-	3.7	4.9	3.8
Taylor Canyon	6200	12/28/78	-	-	2.7	3.6	3.9
Corral Canyon	8500	12/31/78	-	-	7.1*	-	-
Dorsey Basin	8100	12/31/78	-	-	6.4*	-	-
SNAKE RIVER							
Bear Creek	7800	12/31/78	-	-	7.9*	-	-
Big Bend	6700	12/31/78	-	-	3.0*	-	-
76 Creek	7100	12/31/78	-	-	4.7	-	-
Jack Creek, Upper	7250	12/31/78	-	-	4.7*	-	-

*SNOTEL Data, Provisional, Subject to Revision
NR No Reading

Agencies Cooperating in Collecting Data Contained in this Bulletin

FEDERAL
- Agricultural Research Service
- Bureau of Reclamation
- Fish and Wildlife Service
- Forest Service
- Geological Survey
- Navy
- Soil Conservation Service
- U. S. District Court - Federal Water Master
- NOAA, National Weather Service

STATE
- California Cooperative Snow Surveys
- California Department of Parks and Recreation
- California Department of Water Resources
- Colorado River Commission of Nevada
- Idaho Cooperative Snow Surveys
- Nevada Association of Conservation Districts
- Nevada Department of Conservation & Natural Resources
  - Division of Water Resources
  - Nevada State Forester
- Oregon Cooperative Snow Surveys
- Utah Cooperative Snow Surveys
- White Mountain Research Station, Univ. of California

PRIVATE
- Amalgamated Sugar Company
- Kennecott Copper Corporation
- Nevada Irrigation District
- Owyhee Project North Board of Control
- Owyhee Project South Board of Control
- Pacific Gas and Electric Company
- Pershing County Water Conservation District
- Sierra Pacific Power Company
- Truckee-Carson Irrigation District
- Walker River Irrigation District
- Washoe County Water Conservancy District

Other organizations and individuals furnish valuable information for the snow survey reports. Their Cooperation is gratefully acknowledged.

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